Physical Education

Written examination – November

Introduction

The following advice is part of the implementation of the Physical Education examination in 2006.

All outcomes in Units 3 and 4 will be examined.

All of the key knowledge and skills that underpin the outcomes in Units 3 and 4 are examinable.

Structure and format

The examination will be presented in a question and answer book. There will be two sections.

Section A will consist of multiple-choice questions. Students will be required to mark their responses on a multiple-choice answer sheet.

Section B will consist of short-answer and extended-response questions. Students will be required to provide answers to Section B within the spaces allocated on the paper. The number of lines provided after each question, together with the number of marks allocated, will indicate the appropriate length of the response.

The examination for Physical Education will be 2 hours plus 15 minutes reading time in length and will be scored out of 100–120 marks.

All questions will be compulsory for all students.

The examination paper may include items which refer to stimulus material such as newspaper articles, extracts from reports or case study materials.

This new format is demonstrated in the sample examination to follow.

Students may request a script book if there is insufficient space to change or complete an answer.

Teachers and students, in preparation for the examination, should use the sample paper as a guide.

The following documents should be referred to in relation to the 2006 Physical Education examination.

- *Physical Education VCE Study Design 2006–2009*
- *VCE Physical Education Assessment Handbook 2006*

VICTORIAN CURRICULUM AND ASSESSMENT AUTHORITY

Victorian Certificate of Education 2006

SUPERVISOR TO ATTACH PROCESSING LABEL HERE

STUDENT NUMBER

									Letter
Figures									
Words									

PHYSICAL EDUCATION

Written examination

Day Date 2006

Reading time: *. ** to *.** ** (15 minutes)**
Writing time: *. ** to *.** ** (2 hours)**

QUESTION AND ANSWER BOOK

Structure of book

Section	*Number of questions*	*Number of questions to be answered*	*Number of marks*
A	15	15	15
B	12	12	101
			Total 116

- Students are permitted to bring into the examination room: pens, pencils, highlighters, erasers, sharpeners and rulers.
- Students are NOT permitted to bring into the examination room: blank sheets of paper and/or white out liquid/tape.
- No calculator is allowed in this examination.

Materials supplied
- Question and answer book of 19 pages.
- Answer sheet for multiple-choice questions.

Instructions
- Write your **student number** in the space provided above on this page.
- Check that your **name** and **student number** as printed on your answer sheet for multiple-choice questions are correct, **and** sign your name in the space provided to verify this.
- All written responses must be in English.

At the end of the examination
- Place the answer sheet for multiple-choice questions inside the front cover of this book.

Students are NOT permitted to bring mobile phones and/or any other unauthorised electronic devices into the examination room.

SECTION A – Multiple-choice questions

Instructions for Section A

Answer **all** questions in pencil on the answer sheet provided for multiple-choice questions.

Choose the response that is **correct** or that **best answers** the question.

A correct answer scores 1, an incorrect answer scores 0.

Marks will **not** be deducted for incorrect answers.

No marks will be given if more than one answer is completed for any question.

Questions 1–4 relate to the result of a games analysis of a tennis player.

As the coach of a 16-year-old male tennis player, you performed a games analysis and observed a number of movement patterns and muscle actions performed by the player.

You also recorded heart rate data and work to rest ratios to help in your coaching of this athlete.

Question 1

The muscle action of gripping a tennis racket is an example of an

A. isotonic concentric contraction.

B. isotonic eccentric contraction.

C. isometric contraction.

D. isokinetic contraction.

Question 2

Reciprocal inhibition involves a pair of muscles working together to produce movement. While serving, you observed the player extending their elbow as they made contact with the ball. Which pair of muscles would be primarily involved in this process?

A. bicep and triceps

B. pectoralis major and trapezius

C. brachialis and bicep

D. extensor carpi radialis and flexor carpi radialis

Question 3

The work periods (high intensity) and rest periods were timed in the games analysis and the work to rest ratio was calculated to be 1:8.

The dominant system used during the work periods by the player would be

A. ATP-CP

B. lactic acid

C. ATP

D. aerobic glycolysis

Question 4

After evaluating the games analysis results, the coach used the information to devise a training program for the player.

What type of training would be most beneficial in increasing the aerobic capacity of the player and therefore aiding in their recovery between work periods?

A. anaerobic threshold training

B. weight training

C. sprint training

D. continuous training

Question 5

Which of the following would be a likely chronic training effect of a three-month continuous training program?

A. lower resting heart rate, increased size and number of mitochondria, increased oxidation of fat

B. decreased heart rate, decreased glycogen stores and decreased ATP-CP stores

C. increased glycogen and ATP-CP stores and increased fast twitch fibre size

D. decreased oxidation of fat, decreased glycogen stores, decreased size and number of mitochondria

Question 6

Endurance athletes can enhance their performance through their dietary intake.

By carbohydrate loading, endurance athletes are able to improve their performance by

A. using only glycogen as a fuel source for energy production.

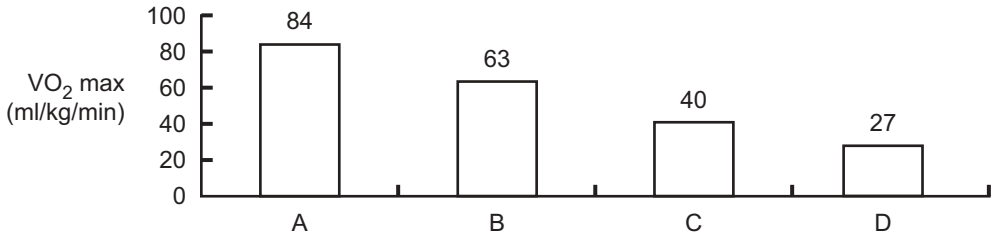
B. recovering more quickly.

C. utilising fats more readily.

D. utilising muscle glycogen stores for longer periods of time.

Question 7

The graph below shows the maximum VO_2 values for four different individuals A–D.



From the graph above, which individual would correspond to the expected VO_2 max value of a male state grade volleyball player?

A. A

B. B

C. C

D. D

Question 8

An appropriate fitness test to estimate a VCE Physical Education student's VO_2 max would be

A. a direct measure using gas analysis equipment and a treadmill.

B. a submaximal test such as the 20 m shuttle run.

C. a submaximal test such as the Margaria Stair Climb.

D. All of the above.

Question 9

The main fuels required for aerobic glycolysis are

A. fats and proteins.

B. proteins and carbohydrates.

C. CP and carbohydrates.

D. carbohydrates and fats.

Question 10

The relative contributions of the three energy systems during a volleyball game would be approximately

A. 10% ATP-CP, 50% lactic acid, 40% aerobic.

B. 40% ATP-CP, 40% lactic acid, 20% aerobic.

C. 90% ATP-CP, 0% lactic acid, 10% aerobic.

D. 40% ATP-CP, 10% lactic acid, 50% aerobic.

Question 11

The National Physical Activity Guidelines for adults recommend the accumulation of physical activity can be achieved by

A. accumulating at least 60 minutes of physical activity per day via three sustained 20-minute bouts.

B. accumulating at least one sustained 30-minute bout of physical activity per day.

C. accumulating at least 60 minutes of physical activity per day via at least 10-minute bouts.

D. accumulating at least 30 minutes of physical activity per day via at least 10-minute bouts.

Question 12

A child of 10 years of age who is active at a moderate intensity for 60 mins per day would be doing

A. sufficient physical activity, at the required intensity, frequency and duration to meet the National Physical Activity Guidelines for Children.

B. sufficient physical activity but not at a high enough intensity to meet the National Physical Activity Guidelines for Children.

C. sufficient physical activity but not for the required duration to meet the National Physical Activity Guidelines for Children.

D. insufficient activity to meet the National Physical Activity Guidelines for Children.

Question 13

An individual who is meeting the National Physical Activity Guidelines, who is attempting to follow an activity plan and has done so for two months, would be classified in which of the following Stages of Change?

A. preparation

B. action

C. termination

D. maintenance

Question 14

The most appropriate choice of physical activity measure to assess the frequency of physical activity of an adult with an intellectual disability would be

A. accelerometry.

B. self-report questionnaire.

C. physical activity diary or log.

D. pedometer.

Question 15

Which one of the following measures would give the **least** accurate estimate of the energy expenditure of an obese child?

A. pedometer

B. accelerometer

C. direct observation

D. heart rate telemetry

END OF SECTION A
TURN OVER

SECTION B – Short-answer questions

Instructions for Section B

Answer **all** questions in the spaces provided.

The use of caffeine tablets by AFL footballers has been highly publicised in the media in recent times.

Players who choose to use caffeine tablets must take into account the ethical considerations of using a performance enhancing supplement.

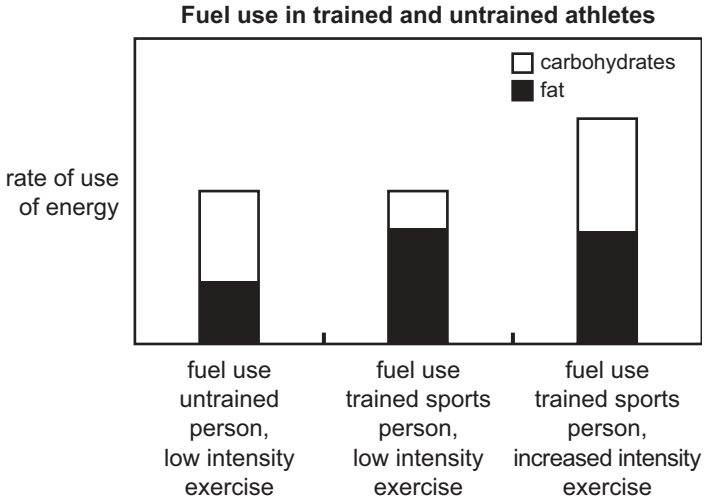
Question 1

Outline **two** positive and **two** negative considerations a player may address when making the decision to use or not use caffeine tablets.

Positive consideration	Negative consideration
1. _____	1. _____
2. _____	2. _____

4 marks

Question 2



a. What term is used to describe the relationship between carbohydrates and fats as shown in the graph?

_____

1 mark

b. List **two** chronic physiological adaptations of endurance training in skeletal muscles which would lead to the trend shown in the graph.

_____

_____

2 marks

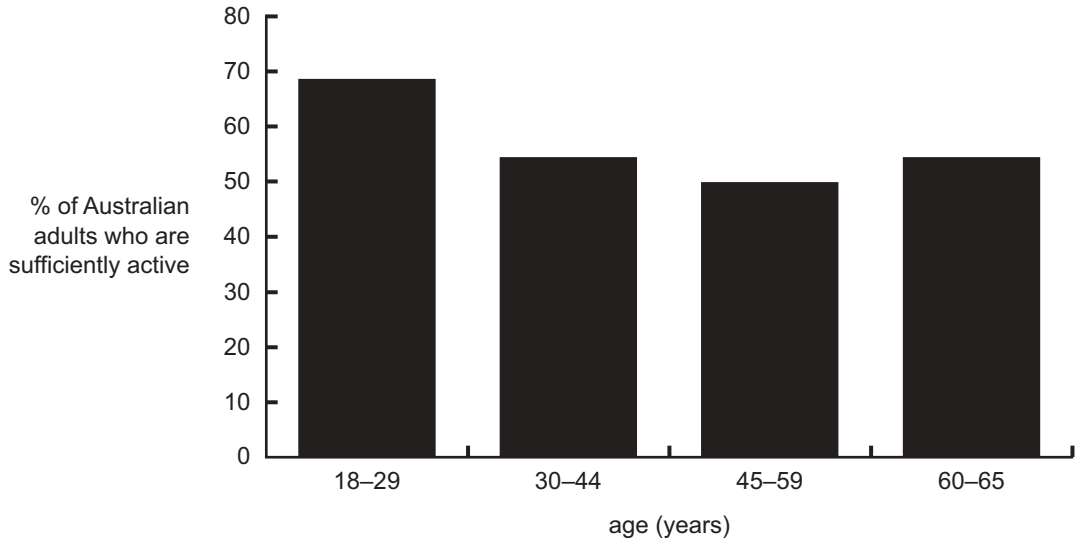
c. Contrast the practice of carbohydrate loading to the effect shown in the graph.

4 marks

Total 7 marks

Question 3

The graph below shows the proportion (%) of adults classified as sufficiently active according to the Active Australia Survey (2000).



a. Describe the trend shown in the graph for adults up to the age of 59 years.

1 mark

b. Explain one reason why the percentage of Australian adults who are sufficiently active is higher at age 60–65 than at age 45–59.

2 marks

c. Identify **two** subgroups of the population who are at a higher risk of being classified as 'insufficiently active for health' or 'inactive'.

i. _____

ii. _____

2 marks

d. Outline **two** population-based approaches to physical activity promotion.

i. _____

_____

_____

_____

ii. _____

_____

_____

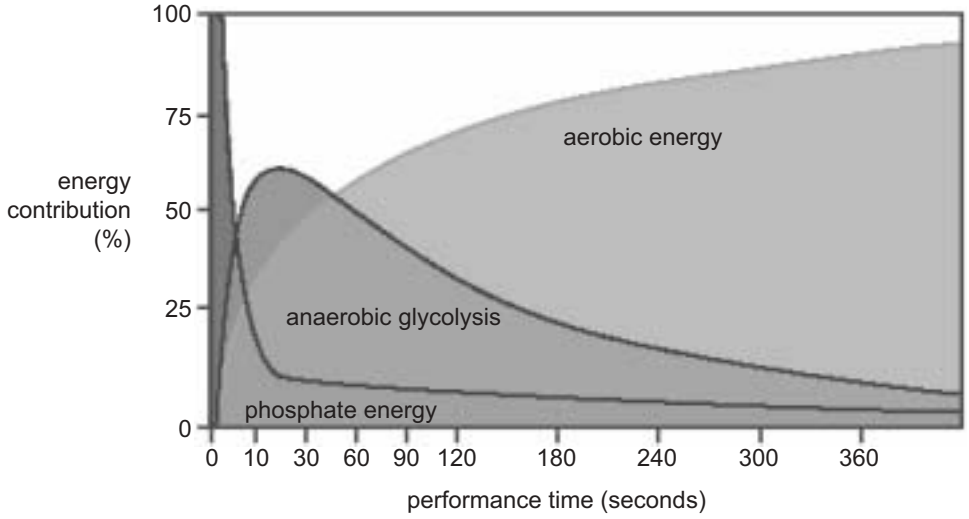
_____

4 marks

Total 9 marks

Question 4

An elite 400 m runner performed a cycle ergometer test. In the test the athlete was required to accelerate to an exercise intensity of 100% of his VO_2 max as quickly as possible and maintain that level for the duration of the test. The relative contribution of the energy systems and total energy supply for this test is shown in the graph below.



a. **i.** Name the dominant energy system during the first 5 seconds of this test.

_____

ii. What is the main component of fitness being used during the first 5 seconds of this test?

_____

2 marks

b. What percentage of total energy supply is contributed by the lactic acid system at the 50-second mark of this test?

_____

1 mark

c. Outline how it is possible for an athlete to work at an intensity of greater than 100% of their VO_2 max.

_____

_____

1 mark

d. A 400 m event completed in approximately 50 seconds uses approximately 40% aerobic and 60% anaerobic energy.

Outline why this proportion is different to that shown in the graph.

_____

_____

1 mark

Total 5 marks

Question 5

A subject was tested twice on a fitness test. Test B was conducted 24 hours after Test A. The only difference in the conditions under which each test was conducted was the amount of rest allowed between sprints. No other strenuous activities were undertaken on either day.

In each case the subject was required to sprint at maximum speed for 7 seconds. This was repeated eight times with a rest between each sprint.

For each sprint the subject was given a score equal to the number of witches' hats they had run past in the 7 seconds allowed. At the end of each sprint a tester recorded the decreases in the number of witches' hats run past from the first sprint. These figures were added together at the end of each test.

Results of both tests are shown in the tables below.

Test A

In Test A the subject was allowed **30 seconds recovery** between each sprint.

Results									**Best possible score**	**Total score**	**Decrease**
Sprint number	1	2	3	4	5	6	7	8	56		
Score on each sprint (number of witches' hats run past)	7	5	4	3	3	2	2	2		28	
Decrease	-	2	3	4	4	5	5	5			28 (50%)

Test B

In Test B the subject was allowed **50 seconds recovery** between each sprint.

Results									**Best possible score**	**Total score**	**Decrease**
Sprint number	1	2	3	4	5	6	7	8	56		
Score on each sprint (number of witches' hats run past)	7	6	5	5	5	4	4	4		40	
Decrease	-	1	2	2	2	3	3	3			16 (29%)

a. Which component of fitness is being measured by these fitness tests?

_____

1 mark

b. Explain the underlying physiological reasons for the greater percentage decrease in performance during fitness Test A compared to fitness Test B.

_____

_____

_____

_____

2 marks

After a 3-month aerobic training program the student was retested on Test A under the same conditions (30 seconds recovery).

c. Explain whether you would expect greater relative improvement in performance on sprint 1 or sprint 8 of the retest.

2 marks

d. List **three** conditions that would have needed to be imposed to ensure that the tests were reliable and accurate.

3 marks

e. The test described is a field test. Outline **two** advantages and **two** disadvantages of field tests compared to laboratory tests.

Advantages

i.

ii.

Disadvantages

i.

ii.

4 marks

Total 12 marks

Question 6

a. Complete the table below by recording the recommendations for each physical activity dimension in relation to the National Physical Activity Guidelines for adults.

Dimension	Physical activity recommendations for adults
Type	
Frequency	
Intensity	
Duration	

4 marks

b. Answer the following questions for an individual who is 7 years old.

i. How many days per week should this individual be physically active?

_____

ii. On the days this individual should be active how many minutes are recommended?

_____

1 + 1 = 2 marks

Total 6 marks

Question 7

a. In the table below, name the fitness component required for the groups of activities listed.

Activities	Fitness component
• a spike in volleyball • a leaping intercept in netball or basketball • a drive or long fairway shot in golf	
• floor routine in gymnastics • diving • baulking in netball	
• 1500 m swim • completing a triathlon • running a marathon	
• tug-of-war • attempting a static hold against an opponent in amateur wrestling • leaning out and attempting to keep a boat upright while sailing	
• sprinting 100 m • AFL full forward leading into space • long jump run up	

5 marks

b. Explain the difference between strength and power using examples from the table above.

2 marks

If a muscle is pre-stretched rapidly during an eccentric contraction, the concentric contraction that immediately follows will be more forceful.

c. Explain how the long jump athlete uses this knowledge to enhance his performance.

2 marks

Netball at the elite level is a fast and furious game where the ball can travel down the court at great speeds. Short passes are often required, but at other times longer passes are the best option.

d. Explain how a muscle can vary its **intensity of contraction** to perform short and longer passes.

2 marks

Total 11 marks

Question 8

a. How would you classify an individual within the Stages of Change model of motivational readiness who is currently inactive but thinking about becoming more active within three months?

1 mark

b. Counselling is an example of a strategy used to promote physical activity undertaken at an individual level. Outline **two** strategies used in counselling.

i.

ii.

2 marks

c. Describe the association between self-efficacy and physical activity behaviour.

2 marks

d. In terms of the National Physical Activity Guidelines, outline the physical activity level of an individual in the 'Termination' phase of the Stages of Change model of motivational readiness.

2 marks

Total 7 marks

Question 9

Study the training program shown below.

Day	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Monday	jog 20 min	rollerblade 30 min	jog 25 min	jog 25 min	backyard resistance circuit 20 min	jog 30 min
Tuesday	rest day	rest day	rest day	rest day	rest day	rest day
Wednesday	backyard resistance circuit 20 min	swim 20 min	swim 20 min	swim 20 min	rest day	rest day
Thursday	rest day	running 2 × 400 m 4 × 200 m 6 × 60 m	rest day	cycle (bike path) 30 min	running 2 × 400 m 6 × 200 m 8 × 60 m	rest day
Friday	rest day	rest day	basketball 1 on 1 30 min	rest day	rest day	Aerobics 30 min class
Saturday	rollerblade 30 min	rest day	rest day	rest day	surfing 60 min	rest day
Sunday	cycle (street) 25 min	cycle (BMX track) 25 min	rollerblade 30 min	tennis 60 min	cycle (BMX track) 35 min	rollerblade 30 min

a. Name **three** recognised training methods used in this program.

3 marks

b. Identify and explain **two** training principles that have been correctly applied in this program.

3 marks

c. Identify and explain **one** training principle that is **not** directly evident in this program.

2 marks

d. What fitness component is this program most likely to develop?

1 mark

Total 9 marks

Question 10

Games analysis can include a skill analysis. Statisticians collect the data for AFL clubs and the results are used by the coach to determine how often, and sometimes how effectively, a player uses a particular skill. The following statistics were recorded at the 2005 AFL Grand Final.

Players	Kicks	Disposals	Marks	Tackles	Time on ground (min)
N Fosdike	16	10	8	7	92
B Kirk	12	10	4	7	104
A Goodes	12	8	7	1	112
J Crouch	13	6	2	3	111
A Buchanan	9	10	4	5	112
P Williams	10	8	3	3	113
B Hall	15	2	10	0	122
L R Thompson	12	5	6	1	122
B Matthews	11	5	3	6	115
L Barry	10	6	5	1	122
J Bolton	10	4	3	6	88

Source: *Sunday Herald Sun*, 25 September 2005

a. Explain how these statistics can be used by the fitness coach when completing a games analysis of an Australian Rules football player.

2 marks

b. Identify **three other** specific pieces of data and/or information that could be gathered to assist with the physiological analysis of an Australian Rules football player.

3 marks

c. Explain how each piece of data given in part **b.** could assist a fitness coach with a physiological analysis of an Australian rules football player.

6 marks

The Australian rules football player can be affected by fatigue at different stages in the game.

d. Identify the major cause of fatigue in the following circumstances.

i. A player takes the ball in the backline, sprints 30 m taking three bounces, kicks 40 m to a team mate, continues to sprint down into the forward line and tackles an opponent in the goal square, covering 70 m total.

ii. An on-ball player has covered 19 km in the match at varying intensities and it is the last five minutes of the match.

2 marks

Players can also suffer from overtraining or 'burnout'.

e. Identify **two physiological** symptoms of overtraining at rest and **two psychological** symptoms of overtraining.

Physiological symptoms at rest	**Psychological symptoms**

4 marks

f. Outline **two** guidelines an athlete can follow to avoid 'burnout'.

2 marks

Total 19 marks

Question 11

Triathletes complete long training sessions and their events require a high level of aerobic endurance.

a. Discuss the nutritional practices for a triathlete in the week leading up to an event and immediately after the event.

i. The week leading up to the event

ii. Immediately after the event (first 0–2 hours)

4 marks

The athlete and coach are responsible for taking all precautions to lessen the chance of injury. Triathletes spend many hours training and are prone to overuse or chronic sporting injuries.

b. Outline **two** specific risk management systems appropriate to training for the triathlete to help reduce the risk of overuse injuries.

1.

2.

2 marks

Total 6 marks

Question 12

You are placed in charge of a mass media campaign to promote participation in regular physical activity.

a. Other than television commercials, identify **three** other examples of mass media examples that could be used.

i. _____

ii. _____

iii. _____

3 marks

b. Outline **two** key roles of a mass media campaign in the promotion of physical activity participation.

i. _____

_____

ii. _____

_____

2 marks

c. Describe the main benefit of a mass media approach in terms of physical activity promotion.

_____

_____

1 mark

Total 6 marks

END OF QUESTION AND ANSWER BOOK